



# **HEATLESS DESICCANT COMPRESSED AIR DRYER**

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OFC Models  
15 - 280 SCFM

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**INSTALLATION, OPERATION  
& MAINTENANCE MANUAL**

**Service Department  
1-800-451-6023**

## DEAR CUSTOMER

Let us take this opportunity to introduce our company.

AIRTEK is an innovative manufacturer of industrial equipment for compressed air systems.

Our product line includes natural gas dryers, fluid coolers, water separators, air filters, refrigerated air dryers, and heatless and heat reactivated desiccant air dryers. Our products can be found in all corners of the world.

No effort has been spared to provide a comprehensive instruction manual for the use of the AIRTEK Dryer. Information is given not only for the user, but also for the technical personnel who may repair the dryer in the event that this is ever necessary. It is recommended that all who will have responsibility for the dryer carefully read all sections of this manual before commencing with the installation.

The most important step is for you as a customer is to call us first at 1-800-451-6023 if you are experiencing a problem with your dryer.

If there is a question regarding this manual or our warranty policies and procedures, please call. We would be happy to speak with you.

Thank you for choosing **AIRTEK** products.  
**AIRTEK Service Department**

## DRYER SPECIFICATIONS

Model No.: \_\_\_\_\_

Serial No.: \_\_\_\_\_

Inlet Design Conditions: \_\_\_\_\_

Flow: \_\_\_\_\_ SCFM@

Pressure: \_\_\_\_\_ 100 \_\_\_\_\_ PSIG

Temperature: \_\_\_\_\_ 100 \_\_\_\_\_ °F

Outlet Dew Point: \_\_\_\_\_ °F PDP @ Above Conditions

Purge Flow: \_\_\_\_\_ SCFM \_\_\_\_\_

Purge Setting: \_\_\_\_\_ PSIG/SCFM \_\_\_\_\_

Power Supply: \_\_\_\_\_ V \_\_\_\_\_ PH \_\_\_\_\_ HZ

Current Draw: \_\_\_\_\_ AMP \_\_\_\_\_

Desiccant/Tower: \_\_\_\_\_ LBS \_\_\_\_\_

Inlet/Outlet Size: \_\_\_\_\_ NPT \_\_\_\_\_

Cycle Time: \_\_\_\_\_ Standard Short Cycle \_\_\_\_\_

Maximum Operating Pressure: \_\_\_\_\_ PSIG

Minimum Operating Pressure: \_\_\_\_\_ PSIG

Maximum Operation Temperature: \_\_\_\_\_ °F

Minimum Operating Temperature: \_\_\_\_\_ °F

### NOTES:

1. This pressure is 95% of MAWP.
2. Operating at "OFF" design conditions may adversely effect Outlet Dew Point.
3. Operation of dryer below 35°F requires heat tracing of certain components upstream of dryer outlet.

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PRIOR TO INSTALLATION OR START-UP OF DRYER, THIS ENTIRE MANUAL SHOULD BE READ & UNDERSTOOD.

### 1. A. INSPECTION:

All Dryers are tested and inspected at the factory prior to shipping. Inspect the dryer carefully upon arrival and note any damage on the freight bill. Uncrate and inspect for concealed damage. File claims with the carrier immediately and notify AIRTEK sales department.

### 1. B. DRYER LOCATION:

Locate the dryer in an area accessible for maintenance. The area should be clean, cool, well lighted, and have a level, vibration free floor. Ambient temperature should be between 35°F and 100°F. Dryer should have a minimum 36" clearance on all sides. See dimensional print for specific clearance requirements.

### 1. C. INSTALLATION: (See typical installation drawing)

Make the following connections:

1. Inlet piping, including an isolation valve.
2. Outlet piping, including an isolation valve.
3. Coalescing Pre-filter and Particulate After-filter.
4. Auto Drain on Pre-filter.
5. Bypass piping if desired. A bubble tight valve should be used for bypass.
6. Make required electrical connections to control box. Refer to applicable drawings. **Note: Customer to provide short circuit protection for dryer.**
7. Access ports should be provided upstream and downstream of the dryer for dewpoint, pressure and temperature checks.
8. All piping should be adequately supported and at least of equal size to the dryer connections.
9. To reduce maintenance & increase dryer efficiency, the exhaust ports can be piped to a location where the exhaust mufflers are not required.

*NOTE: All piping & electrical connections should be checked to insure they have maintained their integrity during shipping and installation.*

**IMPORTANT!** Desiccant dryers are designed to remove water VAPOR only!

The air to be dried must pass through a Coalescing Pre-filter for removal of entrained condensate and oil to prevent fouling of the desiccant. Liquid condensate entering the bed will lead to overloading of the dryer, poor dew point performance, & rapid deterioration of the desiccant. Oil entering the desiccant bed may permanently reduce the capacity of the desiccant.

An Automatic Drain is required on the Pre-filter and all other upstream collection points to remove condensate.

A Particulate After-filter should be provided to prevent desiccant dust from traveling down stream. Desiccant dust may cause contamination & excessive wear to equipment. Before any attempt is made to operate the AIRTEK dryer, the operator should thoroughly read and understand this instruction manual. Improper operation will cause poor results from the dryer.

Periodic checking of the dewpoint just downstream of the dryer is the best indication of whether the dryer is performing as expected. For a rough indication of performance a Color Change Moisture Indicator is provided as standard equipment. The indicator will be green when the outlet air is dry, and white when the outlet air is wet. Optionally available is a High Humidity Alarm or a PowerLoc (Digital Dewpoint Monitor & Demand Cycle Controller).

**2. SAFETY PRECAUTIONS:** *Failure to observe any of the following precautions could result in severe bodily harm and/or damage to equipment.*

- \* Use EXTREME CAUTION when working in the vicinity of the dryer.
- \* Relieve pressure before servicing dryer or associated equipment.
- \* Disconnect power before servicing dryer.
- \* Use ear and eye protection when in the vicinity of the dryer or exhaust ports, especially if the dryer is being operated without mufflers. Even when mufflers are used, a tower blowing down to atmosphere will raise particles, create more noise than during "normal" operation and may startle an individual not used to this portion of the operation.
- \* In the case of an overpressure situation there is a safety relief valve on each tower designed to protect the equipment. If these end up pointed in a hazardous direction after dryer installation, they should be piped to a safe location
- \* Automatic or manual drain valves will eject water, oil, particles and air under partial pressure when operated. Proper precautions must be taken.
- \* Condensate drainage from compressed air systems may contain oil or other contaminants. Follow all applicable regulations for safe handling and disposal.
- \* Various component failures could theoretically cause large air loss and subsequent pressure drop. Preventive maintenance should be performed to reduce the likelihood of this. If this occurs, bypass the dryer immediately to restore flow and pressure.
- \* Activated Alumina dust is considered a nuisance dust. Proper precautions should be taken when handling desiccant. For more information and for other types of desiccant, refer to applicable Material Safety Data Sheet.
- \* For disposal of used desiccant refer to the applicable Material safety Data sheet and all applicable regulations. Note that desiccant contaminated with oil or other foreign substances may be covered under disposal regulations for the contaminant.

### 3. START-UP

Please read and understand the entire manual before operating the dryer.

Check and read over wiring diagram that pertain to your unit and make sure the correct power supply is connected, but do not energize circuit at this time. Provide proper short circuit protection. Follow all applicable codes.

Before starting the dryer your compressor should be running, your air system pressurized and the dryer bypassed and not yet pressurized.

SLOWLY open the inlet isolation valve admitting compressed air to the dryer. It is important to pressurize the dryer slowly to prevent fluidization of the desiccant bed. The dryer outlet isolation valve should be closed at this time.

SLOWLY open dryer outlet isolation valve. At this point all valves are in their "normal" positions, air is flowing through both towers and downstream.

Close the dryer bypass valve. Bypass valve must be bubble tight to prevent moisture from migrating around the dryer and contaminating the dry air outlet.

It is recommended that the dryer be started without the mufflers installed. This will expedite removal of excess desiccant dust and prevent premature clogging of the exhaust mufflers.

**CAUTION: USE EAR AND EYE PROTECTION WHEN OPERATING DRYER WITHOUT MUFFLERS. EXCESSIVE NOISE WILL BE CREATED. DUST AND PARTICLES FROM THE SURROUNDING AREA MAY BECOME AIRBORNE. OPERATION WITHOUT MUFFLERS EXCEEDS OSHA LIMITS.**

Energize the electrical circuit. The dryer will begin to cycle. At this point one tower will exhaust its air to atmosphere. See cautionary statement above.

Purge flow is set in accordance with the specifications for your dryer.

Purge flow is typically 15% of design flow for the dryer.

**Never service the Dryer or Filters without first relieving pressure.**

Check all air connections for leaks and tighten as required. Downstream air leaks will affect dewpoint. Bypass air leaks will affect dewpoint. Only soft seat bypass valves may be used.

Dryer will not perform without proper pre-filtration, condensate drainage, and purge flow. Dryers may require up to 48 hours of operation to reach normal operating dewpoints. Therefore, indicators and/or alarms should not be recognized until that time. Applications requiring dewpoints lower than -40, or with nonstandard operating conditions, may require additional time to reach equilibrium. Exhaust valves and/or exhaust mufflers may have to be cleaned due to dusting in shipping and start-up.

#### 4. SHUTDOWN PROCEDURE:

1. Allow the dryer to reach a repressurization step & fully repressurize.
2. While fully repressurized, remove power from the dryer. After shutdown airflow will continue through one tower, if there is downstream demand, the dryer should be immediately bypassed to prevent loading of the beds while the dryer is out of service.
3. Always remove all pressure & disconnect all power before servicing the dryer.

4. If a PowerLoc is installed and the dryer will be out of service for an extended period of time, remove the probe and store in a safe, dry location. The probe will be damaged if exposed to prolonged periods of saturation conditions.

No other special procedures are required.

#### 5. THEORY OF OPERATION:

Adsorption is the process of removing water VAPOR from the air to be dried. All condensed liquid water should be removed from the inlet air stream prior to reaching the dryer by suitable separators, traps, filters and drains. The dryer can not be burdened with liquid condensate carry-over.

All Desiccants are adversely affected by oil, oil aerosols, dirt, rust, scale or liquid water. Effective pre-filtration in conjunction with automatic condensate drainage is a must for proper dewpoint depression and long desiccant life.

The saturated inlet air is alternately cycled through each of the two desiccant beds. One bed is "on-line" at full line pressure and flow, adsorbing water vapor from the saturated inlet air. This is the drying bed. The other bed is "off-line" at atmospheric pressure (0 PSIG) being regenerated by a depressurized portion of the dried outlet air (purge air). This is the regenerating bed.

The quantity of purge air for a standard pressure dryer is approximately 15% of inlet design flow. This air is taken from the dry air outlet, directed through the purge flow controls, desiccant bed, and finally exhausted to atmosphere to accomplish regeneration. Purge air consumption is typically the largest cost involved with operating a heatless desiccant air dryer. (Purge air is "nonrecoverable" and the air system in question must be designed to allow for this usage.)

**IMPORTANT:** Just as the dryer is designed to remove only water vapor, the moisture being purged from the saturated regenerating bed will also be exhausted in VAPOR form. At no time should you see liquid water being ejected from the dryer! The only water you might see is a small amount of condensate forming at the exhaust due to the Joule-Thomson cooling effect created by the depressing air.

Prior to switching a freshly regenerated bed on-line to become the drying bed, it must be slowly pressurized from atmospheric pressure to line pressure. This step is called repressurization. Repressurization prevents bed fluidization (lifting) and associated dusting.

Following repressurization, the beds switch functions with the fresh bed now drying and the saturated bed being regenerated.

Note that one bed is always on-line drying. Also note that purge air is always being consumed except during repressurization.

This cycle will continue automatically unless the dryer is shut down, operated in the CycleLoc mode, or equipped with a demand cycle controller (PowerLoc).

## 6. A. SEQUENCE OF OPERATION:

The above sequence is controlled by a Solid State Timing and Relay circuit (Sequence Annunciator) which in turn controls a 4-way solenoid valve (S1: inlet switching valve) and a 2-way NC solenoid valve (S2: purge stop/exhaust valve).

### STEP 1: LEFT DRYING, RIGHT REGENERATING

The inlet switching valve (**S1**) is in its default non-energized position, directing all the wet inlet air to the left tower. The air is dried as it passes through the desiccant bed at system pressure, typically 100 PSIG. As the air exits the tower fully dried, the bulk of the air is directed downstream via the outlet check valves.

Approximately 15% of the dried air is directed to the right tower via the purge controls. This purge or regeneration air is reduced to atmospheric pressure (0 PSIG) by the time it enters the right tower. This super dry, low pressure purge air flows down through the desiccant bed, stripping accumulated moisture. It is directed via the inlet-switching valve through the purge stop solenoid (**S2**), which is energized and open. The moisture laden purge air exists to atmosphere through the exhaust muffler.

### STEP 2: LEFT DRYING, RIGHT REPRESSURIZING

The purge stop solenoid (S2) is de-energized and returns to its normally closed position. This prevents the purge air from exhausting to atmosphere, resulting in the right tower and the purge system being pressurized to system pressure.

### STEP 3: LEFT REGENERATING, RIGHT DRYING

Simultaneously the inlet switching valve (S1) and the purge stop solenoid (S2) are energized. Energizing S1 shifts the inlet switching valve to direct the inlet flow to the right tower where it is dried as it passes over the freshly regenerated desiccant bed. S2 opens as it is energized "blowing down" the left tower. Purge air now flows over the left tower, stripping the moisture from the desiccant that was adsorbed when the left tower was on-line drying.

### STEP 4: LEFT REPRESSURIZING, RIGHT DRYING:

The purge stop solenoid (S2) is de-energized and returns to its normally closed position. This prevents the purge air from exhausting to atmosphere, resulting in the left tower and the purge system being pressurized to system pressure.

## 6. B. OPERATIONAL NOTES:

A desiccant dryer should never be suddenly pressurized or depressurized. This will cause fluidizing and dusting.

After start-up, some dusting may occur. This will diminish with time. Some dusting may occur with normal operation. The Exhaust Muffler should be cleaned regularly and an Afterfilter should be used.

Flow direction is Upflow Drying – Downflow Purge.

Switching Failure alarm is optional and the Dryer must be operating over 70 PSI for proper function of the alarm.

During a power loss situation, the exhaust valve will close preventing purge air loss and allowing the system to remain pressurized. Inlet air is able to flow through one tower and downstream.

The standard AIRTEK dryer has a design pressure of 150 PSIG. In good practice the normal working pressure should be below 150 PSIG to prevent the safety valve from blowing off.

## 7. OFC Cycle Control

### Cycle Times (time in minutes)

CYCLE	TOTAL TIME	PER TOWER TIME		
		DRYING	REGEN.	REPRESS
OFC	6.0	3.0	2.5	0.5

## 8. DRYER OUTLET FLOW:

Dryer outlet flow is equal to the dryer inlet flow minus the purge flow.

## 9. A. MAINTENANCE PROGRAM:

### DAILY:

1. Check dewpoint or humidity level, if instrumentation is available. Any difficulty with the dryer will result in poor dewpoint performance.
2. Check for air flow from purge exhaust.
3. Check gauge readings & sequence of operation through complete cycle.
4. Check auto drain operation on Prefilter, Separator & Receiver. A manual drain valve installed (in addition to the automatic drain at these points will ease checking of the automatic drains.
5. Ensure there is no backpressure in the regenerating tower (Pressure = 0 PSIG).

### WEEKLY:

1. Check differential pressure across prefilter & afterfilter elements. Replace if required.
2. Check and maintain operating conditions; Pressure, flow, and Temperature within the design parameters of the dryer.

### SEMI-ANNUALLY:

1. Inspect desiccant for physical condition. Desiccant from a freshly regenerated bed should be white, dry to the touch and of consistent size & shape. If desiccant condition is in question, send a sample to AIRTEK for analysis.
2. Check and clean mufflers. This may be required often under certain conditions or if back pressure develops. Mufflers may require replacement if severely clogged, or after a few cleanings.
3. Replace prefilter and after filter elements
4. Clean automatic drain.
5. Replace purge filter element (OFC 25-55).



6. Check and Blowdown Safety Valves. Refer to manufacturer's instructions.
7. Clean dryer.

**ANNUALLY:**

1. Inspect and rebuild inlet and Exhaust Valves.
2. Return PowerLoc probe & chip for recall, if applicable.

**Note: No lubrication is required.**

**10. A. GENERAL PARTS DESCRIPTION:**

A. Desiccant – An adsorbent used for drying air or gases. Proper quantity, size and type necessary.

B. Inlet Switching Valves – 4-way electric switching valve. Directs inlet air to drying tower and purge air from regenerating tower to exhaust.

C. Exhaust Valve – Normally Closed solenoid valve used to exhaust purge air, hold air in tower on line, and exhaust air from tower ready to be regenerate.

D. Outlet Check Valves – Valves that allow full flow in one direction and no flow in the other are used in conjunction with the inlet and exhaust valve to accomplish desired flow of process air.

E. Safety Relief Valves – Furnished on each tower to protect the vessels from over pressure situations. Standard setting is 150 PSIG.

F. Purge Exhaust Muffler – Furnished to reduce exhaust noise during purge and blow down for personnel protection and to comply with OSHA standards. Mufflers offer no benefit to the operation of the dryer and are a maintenance concern.

Consideration should be given to locating the exhaust in an area where mufflers would not be required.

G. Purge Control Valve – No adjustment is necessary.

H. Solid State Controller/Sequence Annunciator – Furnished for cycle control. Outputs operate 2 electric solenoid valves. Provides for variable cycle control. Provides interface for CycleLoc control or optional PowerLoc Demand Control. Has integral lights to provide visual cycle indication. Has built-in autodrain control. All hard wired connections including field power connection, made to this board.

I. Tower Pressure Gauges – Furnished to read pressure in each tower. On-line tower should read line pressure, regenerating tower should read 0 psig.

J. Purge Air Filter – Filters purge air, which is taken from the dryer outlet, to protect the purge orifice from desiccant dust. Also protects PowerLoc probe where applicable.

**10. B. RECOMMENDED SPARE PARTS**

**DOMESTIC:**

QTY	DESCRIPTION
1	Outlet Check Valve or repair kit
1	Purge Check Valve or repair kit
2	Purge Filter Elements
2	Inlet Valve Repair Kits
1	Exhaust Valve
1	Solid State Control Assembly
1	Exhaust Muffler
2	Pre-Filter Elements
2	After-Filter Elements
1	Automatic Drain Solenoid

**EXPORT:**

QTY	DESCRIPTION
3	Gauge, Pressure
1	Inlet Valve
1	Exhaust Valve
1	Outlet Check Valve & Repair Kit
1	Purge Check Valve & Repair Kit
4	Purge Filter Element
4	Inlet Valve Repair Kit
4	Exhaust Valve Repair Kit
1	Solid State Control Assembly
2	Exhaust Mufflers
4	Pre-Filter Element
4	After-Filter Element
1	Automatic Drain Solenoid
*	Desiccant

**11. DESICCANT REPLACEMENT:**

**CAUTION:** Activated Alumina Desiccant dust is considered a nuisance dust. Proper precautions should be taken. Refer to Material Safety Data Sheet.

1. Remove pressure and power from dryer.
2. Open drain ports on bottom of tanks.
3. Catch desiccant in suitable container. Close drain ports and open top fill ports.
4. Refill with recommended type, size and quantity of desiccant. Rap sides of the chamber while filling, so desiccant will pack tightly. Fill chambers only to within three inches of the top. Some settling may be required to fit specified amount in tank. One tank size may be used for multiple models, do not be concerned if tank is not full.
5. Consult Material Safety Data Sheet and all applicable regulations for disposal of desiccant. Disposal of desiccant contaminated with oil or other substances may require different procedures than desiccant replaced strictly due to aging.

**NOTE:** Use only AIRTEK Desiccant which is a high capacity, high quality desiccant designed & sized for AIRTEK Dryers.

Please consult factory for proper desiccant charge.

## 12. A. SERVICE

All service should be handled through an authorized AIRTEK distributor. Any service performed during the first year of operation without knowledge or consent of AIRTEK will result in voiding of the warranty. AIRTEK will not assume or accept responsibility for any expenses incurred for repair of the dryer without our knowledge or consent.

In order to speed our service to you, should you need it, please fill out the analyzing chart provided at the end of the manual. If there is an operational problem with the dryer and you do not know what the cause is, this chart must be filled out completely and accurately. Always provide the following whenever contacting a distributor or AIRTEK.

1. Dryer model number
2. Dryer serial number
3. Phone number and name of person to contact at dryer location.

## 12. B RETURN OF DEFECTIVE EQUIPMENT:

All claims must be made within five days after receipt of goods, if external damage is present. If order has been filled correctly, we cannot allow the return of the goods without our consent, and then only on a basis of a charge for service and rehandling, plus transportation charges. Transportation must always be prepaid. If it is necessary to return a part to the factory for replacement or inspection, do not fail to do the following.

1. Write or call the nearest sales and service office advising what material you wish to return and why.
2. After receiving return material authorization complete the following:
  - a. Tag package showing your name, address and return material authorization number
  - b. Tag each article with part number and quantity.
  - c. Always give model and serial number of the dryer.
  - d. Always give invoice number on which the machine was originally shipped.
3. All parts being returned for credit should be handled same as above.

## 12. C. WARRANTY

AIRTEK air dryers are warranted against defect due to faulty workmanship or parts for a period of one year from date of shipment. This guarantee covers replacing such parts as found defective due to defective material or workmanship, only when such parts are returned to AIRTEK, transportation prepaid and subject to our inspection and approval. No liability is accepted for consequential damages or reinstallation.

AIRTEK will not assume responsibility for contingent liability through the alleged failure or failures of any of its products or their accessories.

Bills for service, labor or other expenses that have been incurred by the Buyer, their customer or agent, without approval or authorization by the manufacturer will not be accepted.

This warranty does not cover failure resulting from improper installation and/or mounting design which permits liquid water or other contaminants into the dryer destroying the desiccant or allows excess vibration causing breakage of parts due to material fatigue. This warranty does not cover failure or leaking of valves due to dust or dirt or any regular maintenance items such as replacement filter elements.

To validate the warranty on your AIRTEK dryer, simply fill out the WARRANTY REGISTRATION CARD enclosed with the dryer, and mail it to the address on the card face. Failure to do this could result in the refusal of warranty should any service be necessary in the first year of operation.

## 12. D. DISCLAIMER & LIMITATIONS

The company (AIRTEK) makes no other warranty of any kind whatsoever, expressed or implied, and all warranties of merchantability and fitness for a particular purpose are hereby disclaimed by the company. The company shall in no case be subject to any obligation or liability whatsoever with respect to product or services manufactured or furnished by it or any acts of omission relating thereto. The remedy provided under this warranty shall be the sole, exclusive, and only remedy available to the purchaser. Under no circumstances shall the company be liable for any special, indirect, incidental or consequential damage, losses or delays however caused.



### 13. A.

### **TROUBLE SHOOTING GUIDE:**

<b>Complaint:</b>  DRYER NOT OPERATING:	<b>Possible Cause &amp; Repair:</b>  A: No Lights On: <ul style="list-style-type: none"> <li>- Blown control fuse: Replace fuse.</li> <li>- No power: Apply correct power.</li> <li>- Solid State Controller inoperative: Replace</li> </ul> B: Lights On, Dryer Does Not Switch: <ul style="list-style-type: none"> <li>- Dryer in PowerLoc Mode</li> <li>- Dryer in CycleLoc Mode</li> </ul>
FAILURE TO SWITCH ALARM (Optional):	<ul style="list-style-type: none"> <li>- Time delay setting too short. Adjust properly.</li> <li>- See dryer not operating</li> </ul>
OUTLET DEWPOINT HIGH:	<ul style="list-style-type: none"> <li>- Dryer not cycling: See Dryer not operating.</li> <li>- Capacity of dryer being exceeded: Adjust inlet flow, pressure &amp; temperature to within specified operating parameters. High flow, low pressure or high temperature will all adversely effect dryer performance</li> <li>- Liquid water present at dryer inlet: Check water level in separators, receivers, prefilters &amp; operation of associated y-strainers and auto drains. Check condition of filter elements or check D.P. Gauges.</li> <li>- Desiccant worn out, contaminated or insufficient quantity: Replace or top off.</li> <li>- Back pressure in regenerating tank: See below.</li> <li>- Leaking bypass valve: Remedy.</li> <li>- Undried air from another source mixing down stream of dryer: Remedy.</li> </ul>
MOISTURE DOWNSTREAM:	<ul style="list-style-type: none"> <li>- See Outlet Dewpoint High.</li> </ul>
EXCESSIVE AIR LOSS ON REGENERATING TOWER:	<ul style="list-style-type: none"> <li>- Check valve leaking: Repair, clean or replace.</li> <li>- Inlet valve leaking or not functioning: See Below</li> <li>- Defective controller: Repair or replace.</li> </ul>
EXHAUST VALVE LEAKING DURING REPRESSURIZATION:	<ul style="list-style-type: none"> <li>- Valve dirty or defective: Clean or replace valve.</li> <li>- False signal from control board: replace</li> </ul>
EXCESSIVE PRESSURE DROP:	<ul style="list-style-type: none"> <li>- Prefilter dirty: Replace element</li> <li>- Afterfilter dirty: Replace element</li> <li>- Desiccant dirty: Replace Desiccant</li> <li>- Excess flow: Reduce flow to within specs.</li> </ul>



## **TROUBLE SHOOTING GUIDE (con't):**

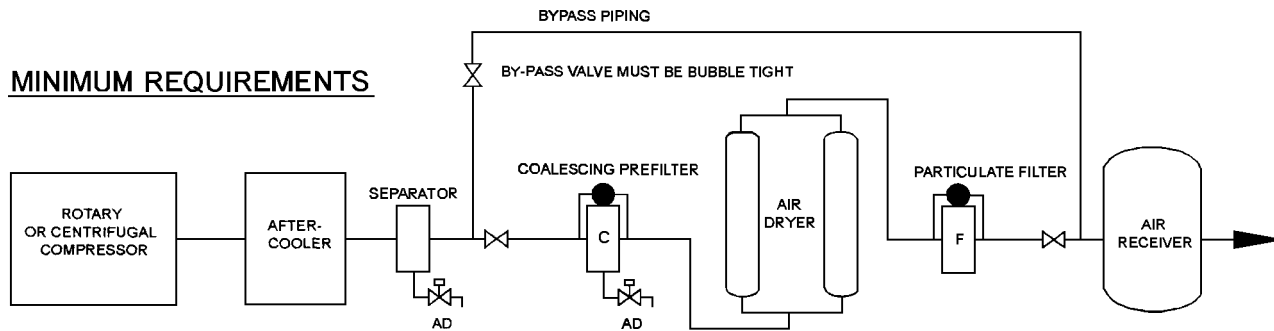
<p>Complaint:</p> <p>UNIT DOES NOT FULLY REPRESSURIZE:</p>	<p>Possible Cause &amp; Repair:</p> <ul style="list-style-type: none"> <li>- Exhaust valves leaking: See above.</li> <li>- Purge or repressurization orifice plugged: Clean</li> </ul>
<p>BACK PRESSURE IN REGENERATING TOWER:</p>	<ul style="list-style-type: none"> <li>- Clogged mufflers: Clean, repair or replace.</li> <li>- Check valves leaking: Clean, repair or replace.</li> <li>- Leaking inlet valve: See inlet valve not functioning.</li> </ul>
<p>INLET OR EXHAUST VALVES NOT FUNCTIONING:</p>	<ul style="list-style-type: none"> <li>- Bad seals or solenoid: Rebuild valves with available kits or replace</li> <li>- No output from controller: Replace fuse or controller</li> <li>- Valve dirty: Clean.</li> </ul>
<p>NOTES:</p>	<ul style="list-style-type: none"> <li>- When factory assistance is required always provide model, serial number, full description of problem and a completed analyzing chart.</li> <li>- For trouble shooting PowerLoc, please consult PowerLoc manual.</li> </ul> <p>If at any time a problem develops, fill out a copy of the analyzing chart. It is also good practice to fill out a chart monthly. Keep these charts on file for comparison purposes if a problem arises.</p>

## 14. A. Sequence of Operation Diagram

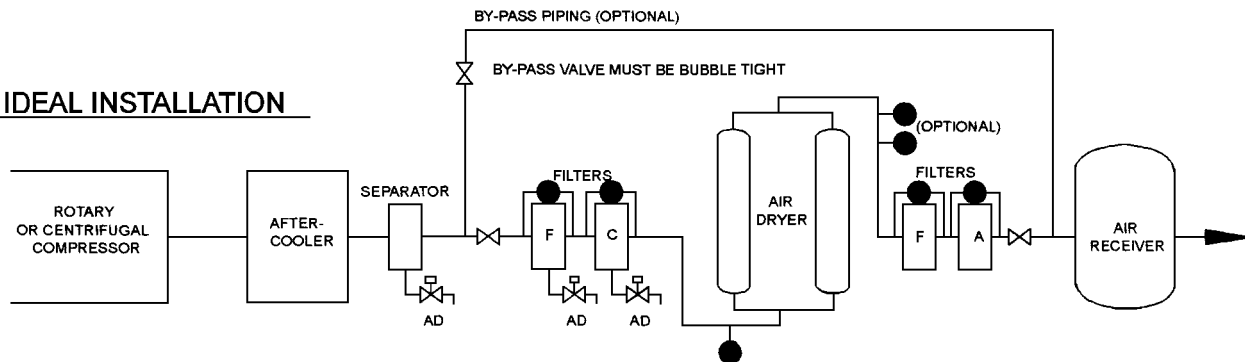
# RECOMMENDED INSTALLATION CLEAN DRY, CONTAMINANT FREE AIR

(Note: Desiccant Dryers are designed to remove water VAPOR only)  
(Liquid water and oil will damage desiccant)

### MINIMUM REQUIREMENTS



### IDEAL INSTALLATION



### NOTES:

1. By-Pass Piping should be installed around filters and dryer for servicing.
2. Differential pressure indicators should be installed on filters for monitoring of elements
3. Coalescing Prefilter & Particulate Afterfilter are required. Particulate filter before dryer and adsorber after dryer are optional.
4. Auto drains must be installed on separator, air receiver, prefilter & coalescer.
5. Location of receiver may vary depending on particular conditions & type of compressor. Auto drain required when receiver is mounted upstream of dryer.
6. Locate coalescing filter as close to dryer as possible.

### KEY:

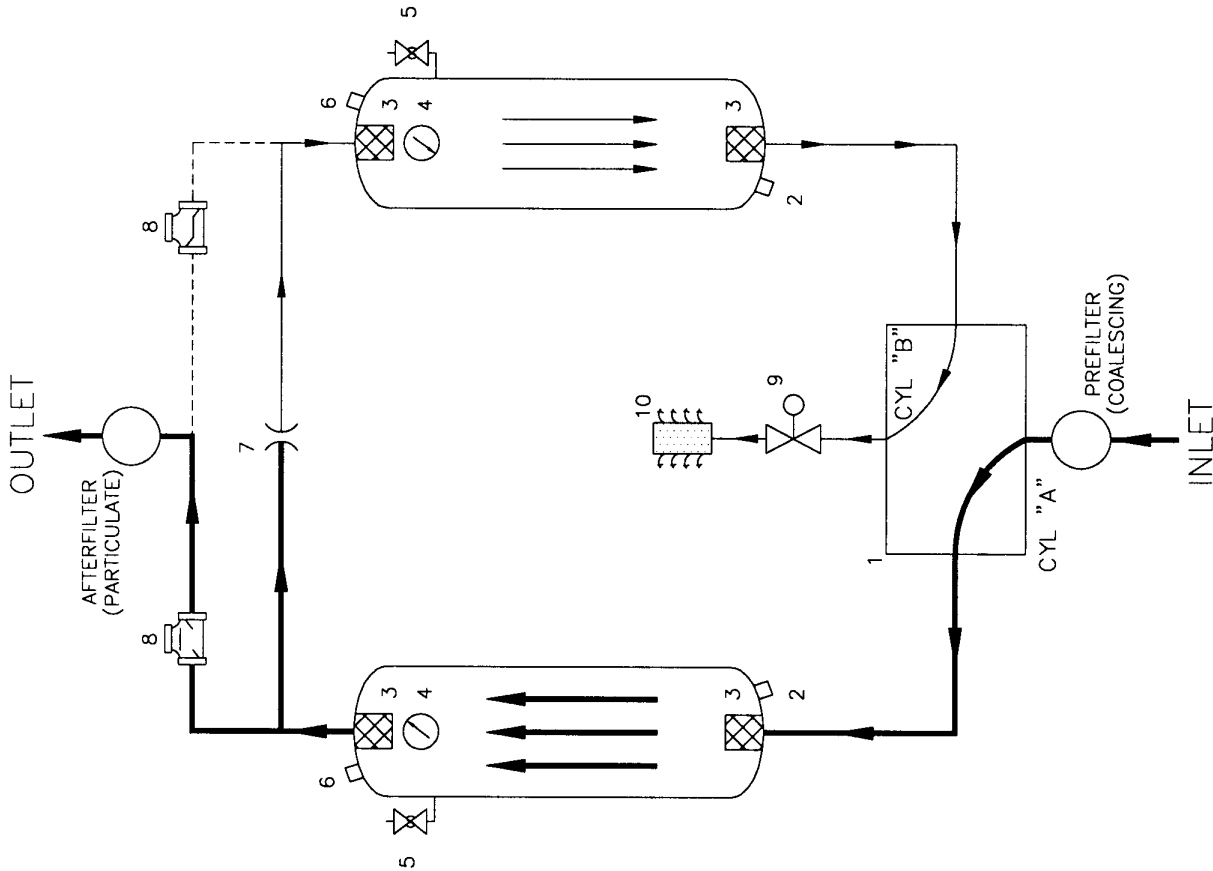
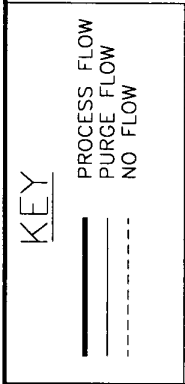
AD = AUTOMATIC DRAIN  
F = PARTICULATE FILTER  
C = COALESCING FILTER  
A = ADSORBING FILTER  
T = TEMPERATURE INDICATOR  
D = DEWPOINT INDICATOR/CONTROLLER  
= DIFFERENTIAL PRESSURE INDICATOR

### WARNING: INCORRECT INSTALLATION WILL VOID WARRANTY

- COALESCING PREFILTER W/ AUTO DRAIN MUST BE INSTALLED
- DRYERS ARE DESIGNED FOR 100°F INLET TEMPERATURE
- DRYER SHOULD BE LOCATED IN AN AREA ACCESSIBLE FOR MAINTENANCE
- AMBIENT TEMP. SHOULD BE BETWEEN 35°F & 100°F
- LOCATION SHOULD BE CLEAN, COOL, w/ A LEVEL, VIBRATION FREE FLOOR.

DWG AT718  
Rev. C  
1/15/92

14. B. Flow Diagram: OFC15 - OFC80

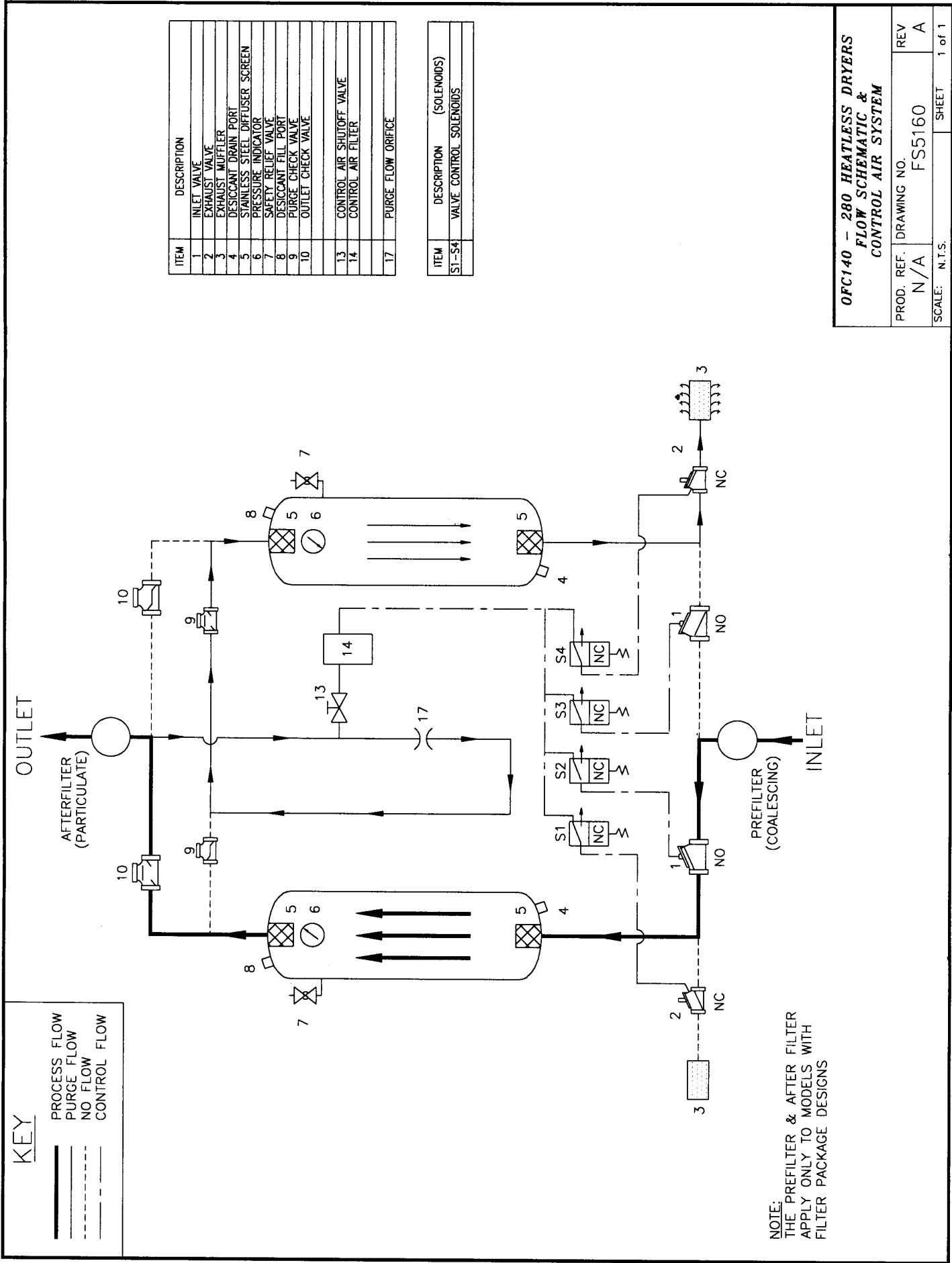


ITEM	DESCRIPTION
1	4-WAY INLET VALVE
2	DESICCANT DRAIN PORT
3	STAINLESS STEEL DIFFUSER SCREEN
4	PRESSURE INDICATOR
5	SAFETY RELIEF VALVE
6	DESICCANT FILL PORT
7	FIXED FLOW ORIFICE
8	OUTLET CHECK VALVE
9	PURGE STOP SOLENOID
10	PURGE MUFFLER

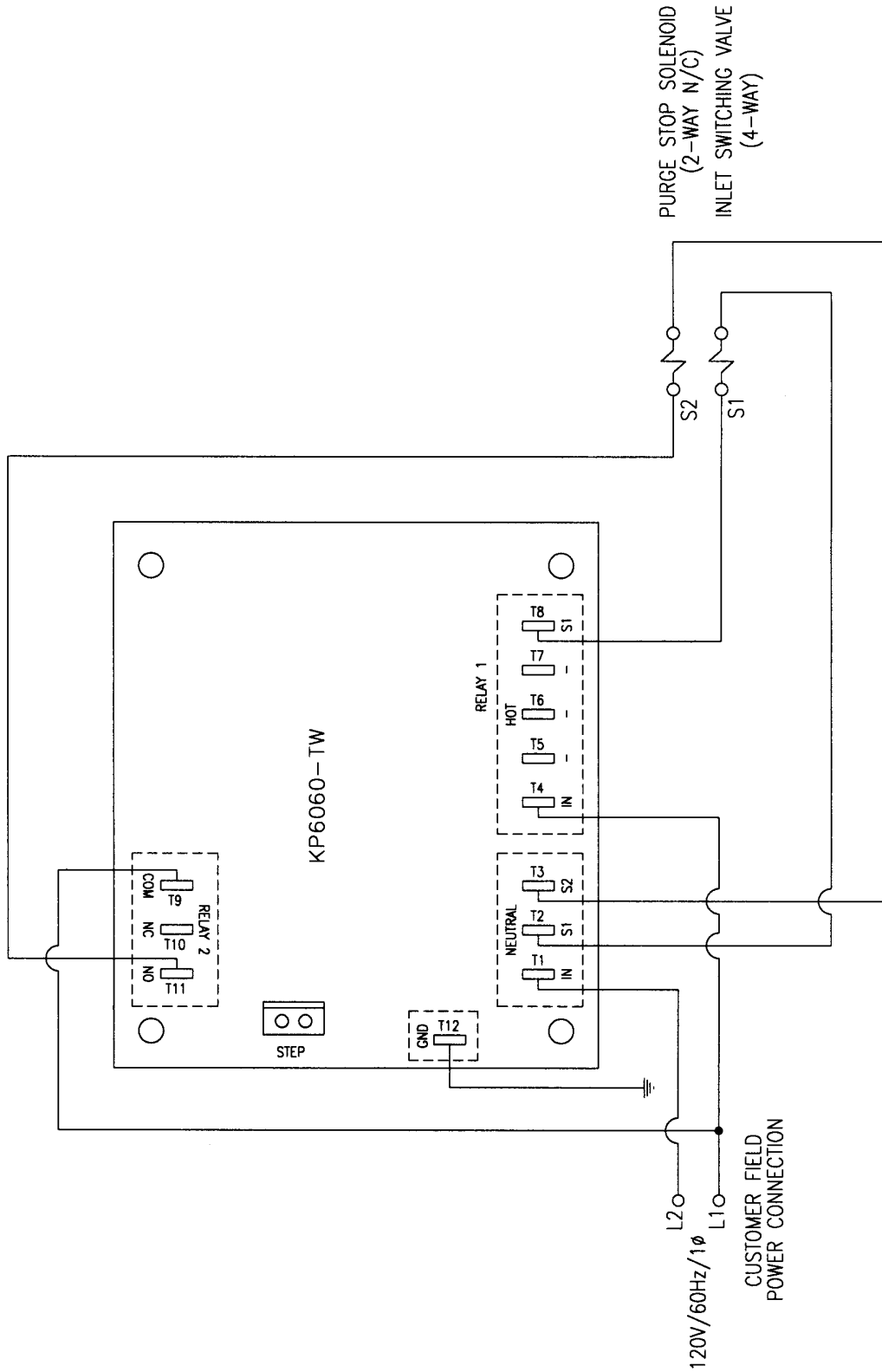
NOTE:  
THE PREFILTER & AFTER FILTER  
APPLY ONLY TO MODELS WITH  
FILTER PACKAGE DESIGNS

OFC15 - 80 FLOW SCHEMATIC & CONTROL AIR DIAGRAM		
PROD. REF.	DRAWING NO.	REV
N/A	FS5123	B
SCALE: N.T.S.	SHEET	1 of 1

14. C. Flow Diagram: OFC140 - OFC280



14. D. Wiring Diagram, OFC15 - OFC80

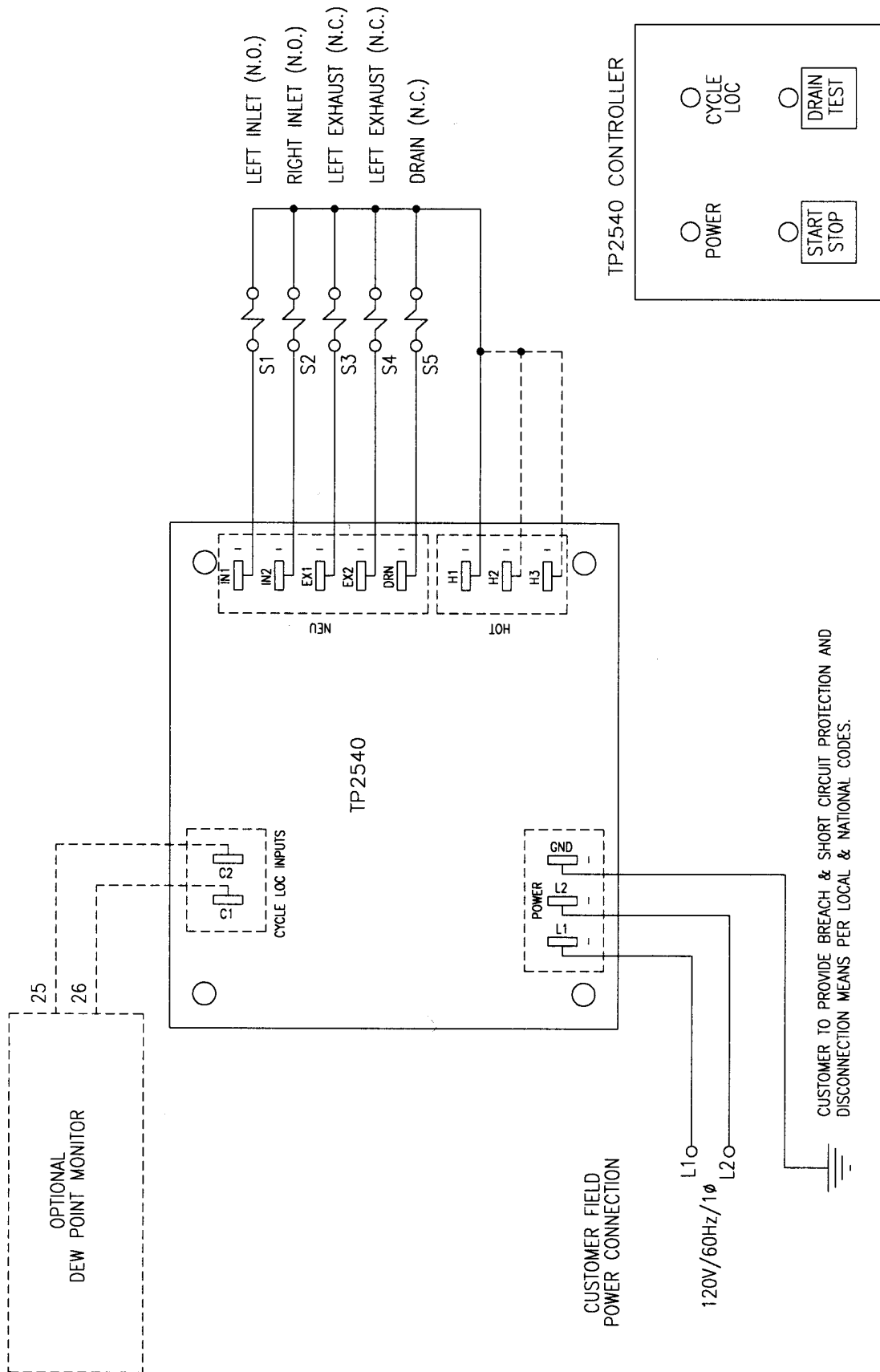


**OFC15 - 80 WIRING DIAGRAM**  
**4-WAY VALVE DESIGN**  
**w/ MINI SEQUENCER CONTROLLER**

PROD. REF.	DRAWING NO.	REV
N/A	ATE2706	C
SCALE: N.T.S.	SHEET	1 of 1



## 14. E Wiring Diagram, OFC140 - OFC280



OFC140 - 280 DRYERS  
WIRING DIAGRAM  
w/ TP2540 SEQUENCER CONTROLLER

PROD. REF.	DRAWING NO.	REV
N/A	ATE2737	B
SCALE:	N.T.S.	SHEET 1 of 1



## Dryer Service Record

[illegible]

# 15. B. ANALYZING CHART

## ANALYZING / PERFORMANCE CHART

OFC15 - OFC 280: HEATLESS TWIN TOWER DRYER

DATE: \_\_\_\_\_ DRYER INLET FLOW (SCFM): \_\_\_\_\_  
MODEL: \_\_\_\_\_ DRYER INLET TEMPERATURE: \_\_\_\_\_  
SERIAL NUMBER: \_\_\_\_\_ PURGE SETTING: \_\_\_\_\_  
AMBIENT TEMPERATURE: \_\_\_\_\_ COMPRESSOR HP: \_\_\_\_\_  
OPERATING PRESSURE: \_\_\_\_\_ CYCLE SWITCH SETTING: ☐ STND 10 MIN  
☐ SHORT 5 MIN

TIME	PRESSURE (PSIG)			STATUS LIGHTS ("X" WHEN LIT)					DEW POINT (OPT.)
	LEFT TOWER	PURGE GAUGE	RIGHT TOWER	DRYING		REGENERATING		REPRES	
				LEFT	RIGHT	LEFT	RIGHT		
1 MIN									
2 MIN									
3 MIN									
4 MIN									
5 MIN									
6 MIN									
7 MIN									
8 MIN									
9 MIN									
10 MIN									
11 MIN									
12 MIN									
13 MIN									
14 MIN									
15 MIN									
16 MIN									
17 MIN									
18 MIN									
19 MIN									
20 MIN									

### PERFORM EACH OF THE FOLLOWING CHECKS ONCE DURING LEFT TOWER DRYING & ONCE DURING RIGHT TOWER DRYING:

IS THERE ANY "BACK PRESSURE" IN THE REGENERATING TOWER? Y/N \_\_\_\_\_ PSIG

WITH THE PURGE VALVE FULLY CLOSED, IS THERE ANY FLOW FROM THE EXHAUST VALVE? L: Y/N R: Y/N

HAVE YOU CHECKED THE CONDITION OF YOUR COALESCING PREFILTER ELEMENT?

HAVE YOU CHECKED THE AUTO DRAINS ON YOUR SEPARATOR, RECEIVER & PREFILTER TO ENSURE PROPER DRAINAGE?